



795 Cromwell Park Drive, Suite N
Glen Burnie, Maryland 21061
410.766.2390 • 800.635.9507
Fax 410.768.0749
www.SEAlimited.com

Samuel G. Sudler, III, P.E., IntPE, DFE, F.NSPE, CFEl, CVFI
ssudler@SEAlimited.com

Education

University of Pittsburgh
Bachelor of Science in Electrical Engineering

Pittsburgh, Pennsylvania

Experience

Senior Electrical Engineer
SEA, Ltd.

2008 to Present
Glen Burnie, Maryland

Senior Electrical Engineer
SEA, Ltd.

2007 to 2008
Elk Grove, Illinois

Electrical Engineer
SEA, Ltd.

2002 to 2007
Elk Grove, Illinois

Investigate electrical faults and malfunctions, particularly those suspected of causing a fire, equipment damage, or electrocution. Reconstruct accidents to determine the mode, sequence, and/or component of failure resulting in the damage to equipment or injury to individuals. Analyze various types of electrical power equipment (i.e., transformers, circuit breakers, power lines, commercial and residential electrical systems, etc.) and appliances on-site and/or in the laboratory to determine the cause or result of an incident (i.e., fire, equipment damage, or personal injury). Conduct tests to determine the reliability of products.

Senior Process Engineer
Pilkington N.A., Inc.

1999 to 2002
Ottawa, Illinois

Responsible for reviewing main areas of loss in the wareroom process, and through the use of Six Sigma Measure, Analyze, Improve, and Check (MAIC) process, identify and implement changes to reduce areas of lost production. Installed and commissioned Focus Automation Glass digital camera inspection systems, which were programmed to automatically identify and reject defective glass, based on dimensional and cutting quality specifications. Conducted potential Failure Mode and Effect Analysis (FMEA) for all electrical equipment and control systems of the wareroom. Database Administrator (DBA) responsible for designing efficient queries, making database design changes, designing database maintenance routines, maintaining existing and designing new database loading programs for all production databases.

Created various C programs for all production databases. Visual Basic (VB) applications and modified VB Human Machine Interface (HMI) programs to generate statistical process control (SPC) limit alarms that improved the manufacturing efficiency, improved quality, and reduced time to produce customer orders.

Senior Electrical Engineer**1998 to 1999***Pilkington N.A., Inc.**Ottawa, Illinois*

Recommended, purchased, and installed electrical equipment and software to increase reliability and improve system performance. Responsible for maintaining and ensuring the integrity of systems and equipment in the wareroom, which consisted of a Linux computer system, Texas Instruments and Reliance Programmable Logic Controllers (PLC), AC/servo drive control systems, ABB IRB 6000 robot servo control systems and robot programming. Directed the electrical staff in troubleshooting, repairing, or installing electrical equipment. Reviewed maintenance/engineering projects and work orders, oversaw and coordinated maintenance activities to ensure that maintenance resources were effectively utilized to ensure the facility met production targets.

Electrical Maintenance Supervisor**1996 to 1998***Birmingham Steel Corporation**Kankakee, Illinois*

Responsible for design, purchase, installation, and maintenance of electrical equipment in the Rolling Mill and Shipping Departments for both the Kankakee and Joliet plants. Audited the Asea Brown Broveri (ABB) control systems for five Birmingham Steel plants for the Executive Vice President. Responsible for electrical maintenance budget, totaling \$500,000. Supervised a team of one technician, one electrical lead man, and eight electricians. Maintained the 24 KV substation that provided power to the Kankakee facility, which consisted of two 5000 KVA transformers, bus bar integrity, and battery backup system for emergency medium-voltage switcher operation. Responsible for installing, maintaining, modifying, and troubleshooting various equipment, such as Human Machine Interfaces (HMI), Siemens/Allen-Bradley/ABB Programmable Logic Controller (PLC) programs, AC/DC/servo drive control systems, and configuration of the vector control AC drives for the 1000 HP motors. Designed, installed, reprogrammed, and commissioned the electrical equipment and control system for Danieli Tying machines at the Joliet facility.

Electrical Engineer**1995 to 1996***Beta Steel Corporation**Portage, Indiana*

Served as a member of the commissioning team, making recommendations and decisions concerning the design, operation, and reliability of Melt Shop equipment. Responsible for the installation, commissioning, testing, and maintenance of all electrical equipment installed during the commissioning phase. Electrical equipment consisted of medium voltage switchgear, Siemens and GE PLCs and transformers, and configuring overcurrent and short-circuit thyronic protective devices for motors up to 1750 HP.

Electrical Maintenance Planner**1994 to 1995***Weirton Steel Corporation**Weirton, West Virginia*

Engineered electrical projects and made recommendations to either improve, repair, or replace equipment and/or modify the method of operation. Assisted the Senior Electrical Supervisor in identifying and troubleshooting electrical equipment. Supervised the coke and iron preventative maintenance program. Assisted the Manager of Corporate Recruiting and Employee Development in evaluation of potential candidates for employment.

Electrical Engineering Co-op Student**1990 to 1992***West Penn Power**Greensburg, Pennsylvania*

Provided assistance to the Engineering Supervisor in an effort to increase knowledge in the field of Electrical Engineering. Improved service reliability by implementing fuse correlation and Radial Distribution Feeder Analyses Program. Increased the power factor of the 138 KV and 12 KV substation transformers by installing capacitors via 12 KV circuits. Updated and developed blueprints from existing circuit prints.

Professional Registration

State of Alabama, License No. 29059
 State of Arkansas, Registration No. 13533
 State of Arizona, Registration No. 43391
 State of California, Registration No. 18451
 State of Colorado, License No. PE-39550
 State of Connecticut, License No. PEN 0026215
 State of Delaware, License No. 13902
 District of Columbia, License No. PE905017
 State of Florida, License No. 60538
 State of Georgia, Registration No. PE029011
 State of Idaho, License No. P-18222
 State of Illinois, License No. 062055428
 State of Indiana, Registration No. PE10302104
 State of Iowa, License No. 18739
 State of Kansas, License No. 17983
 Commonwealth of Kentucky, License No. 25623
 State of Louisiana, License No. PE.0031153
 State of Maine, License No. 11535
 State of Maryland, Registration No. 29419
 Commonwealth of Massachusetts, License No. 47729
 State of Michigan, License No. 6201050208
 State of Minnesota, License No. 42968
 State of Mississippi, License No. 18302
 State of Missouri, License No. 2003006452
 State of Montana, License No. 18325
 State of Nebraska, License No. 12368
 State of Nevada, License No. 024559
 State of New Hampshire, License No. 12347
 State of New Mexico, License No. 24266
 State of New York, License No. 16-082156
 State of North Carolina, License No. 033641
 State of North Dakota, Registration No. PE-5936
 State of Ohio, Registration No. E-68433
 State of Oklahoma, License No. 29478
 State of Oregon, Registration No. 80397PE
 Commonwealth of Pennsylvania, Registration No. PE075136
 State of Rhode Island, Registration No. 11013
 State of South Carolina, License No. 26056
 State of South Dakota, Registration No. 9454
 State of Tennessee, Registration No. 111920

State of Texas, License No. 126323
 State of Utah, Registration No. 10339520-2202
 State of Vermont, License No. 018.0129541
 Commonwealth of Virginia, License No. 040441
 State of Washington, Registration No. 44330
 State of West Virginia, Registration No. 22364
 State of Wisconsin, Registration No. 36081-006
 State of Wyoming, Registration No. 16066

International Professional Registration

Registered International Professional Engineer (IntPE) in the disciplines of Electrical Engineering and the specialty practice areas of Forensic Engineering Studies, by the United States Council for International Engineering Practice (USCIEP) (A Participating International Registry Member of the Asian-Pacific Economic Cooperation (APEC) Engineer Coordinating Committee and the Engineers Mobility Forum (EMF) International Register Coordinating Committee), International Registration No. IR157

Certifications

Board Certified Diplomate in Forensic Engineering by the National Academy of Forensic Engineers in accord with the guidelines of the Council of Engineering Specialty Boards (CESB)
 Certified Fire and Explosion Investigator (CFEI)
 Certified Vehicle Fire Investigator (CVFI)
 Certified Model Law Engineer (MLE) by National Council of Examiners for Engineers and Surveyors (NCEES)
 Certified Lean Six Sigma Black Belt by Six Sigma Qualtec, Inc.

Standards Technical Committees

Member of the American National Standards Institute (ANSI)/Underwriters Laboratories (UL) Technical Committee (TC) 1642, formerly known as Standards Technical Panel (STP) 1642, *Lithium, Household and Commercial Batteries*, that is responsible for maintaining the following UL Safety Standards:

- UL 1642, Lithium Batteries
- UL 2054, Household and Commercial Batteries
- UL 60086-4, Primary Batteries-Part 4: Safety of Lithium Batteries
- UL 62133, Secondary Cells and Batteries Containing Alkaline or Other Non-Acid Electrolytes - Safety Requirements for Portable Sealed Secondary Cells, and for Batteries Made From Them, for Use in Portable Applications
- UL 62133-1, Secondary Cells and Batteries Containing Alkaline or Other Non-Acid Electrolytes - Safety Requirements for Portable Sealed Secondary Cells, and for Batteries Made From Them, for Use in Portable Applications - Part 1: Nickel Systems
- UL 62133-2, Secondary Cells and Batteries Containing Alkaline or Other Non-Acid Electrolytes - Safety Requirements for Portable Sealed Secondary Cells, and for Batteries Made From Them, for Use in Portable Applications - Part 2: Lithium Systems

Member of the ANSI/UL TC 2595 – *General Requirements for Battery-Powered Appliances*, that is responsible for maintaining the following UL Safety Standards:

- UL 2595, General Requirements for Battery-Powered Appliances

Member of the ANSI/UL TC 2580 – *Batteries For Use in Electric Vehicles*, that is responsible for maintaining the following UL Safety Standards:

- UL 2271, Standard for Batteries for Use in Light Electric Vehicle (LEV) Applications
- UL 2580, Standard for Batteries for Use in Electric Vehicles

Member of the ANSI/UL TC 2202 – *Electric Vehicle Charging System Equipment*, that is responsible for maintaining the following UL Safety Standards:

- UL 2202, Standard for Electric Vehicle (EV) Charging System Equipment
- UL 2594, Standard for Electric Vehicle Supply Equipment

Member of the ANSI/UL TC 9540 – *Energy Storage Systems and Equipment*, that is responsible for maintaining the following UL Safety Standards:

- UL 9540, Standard for Energy Storage Systems and Equipment
- UL 9540A, Test Method for Evaluating Thermal Runaway Fire Propagation in Battery Energy Storage Systems

Member of the UL TC 3001 – *Distributed Energy Generation And Storage Systems*, that is responsible for maintaining the following UL Safety Standards:

- UL 3001, Standard for Distributed Energy Generation And Storage Systems

Member of the ANSI/UL TC 6200 – *Controls For Stationary Engine Driven Assemblies*, that is responsible for maintaining the following UL Safety Standards:

- UL 6200, Standard for Controllers for Use in Power Production

Member of the ANSI/UL TC 2231 – *Personnel Protection Systems For EV Supply Circuits*, that is responsible for maintaining the following UL Safety Standards:

- UL 2231-1, Standard for Safety for Personnel Protection Systems for Electric Vehicle (EV) Supply Circuits: General Requirements
- UL 2231-2, Standard for Safety for Personnel Protection Systems for Electric Vehicle (EV) Supply Circuits: Particular Requirements for Protection Devices for Use in Charging Systems

Member of the ANSI/UL TC 1973 – *Batteries Used in Stationary And In Light Electric Rail*, that is responsible for maintaining the following UL Safety Standards:

- UL 1973, Standard for Batteries for Use in Stationary, Vehicle Auxiliary Power and Light Electric Rail (LER) Applications
- UL 1989, Standard for Stationary Batteries

Member of the ANSI/UL TC 5840 – *Battery Powered Ground Support Equipment*, that is responsible for maintaining the following UL Safety Standards:

- UL 5840, Standard for Electrical Systems of Battery Powered Aviation Ground Support Equipment

Member of the ANSI/UL TC 2591 – *Battery Cell Separators*, that is responsible for maintaining the following UL Safety Standard:

- UL 2591, Outline of Investigation for Battery Cell Separators

Member of the ANSI/UL TC 1012 – *Battery Chargers*, that is responsible for maintaining the following UL Safety Standards:

- UL 1012, Standard for Power Units Other Than Class 2
- UL 1236, Standard for Battery Chargers for Charging Engine-Starter Batteries
- UL 1564, Standard for Industrial Battery Chargers
- UL 60335-2-29, Household and Similar Electrical Appliances, Part 2-29: Particular Requirements for Battery Chargers

Member of the ANSI/UL TC 110 – *Mobile Phones*, that is responsible for maintaining the following UL Safety Standard:

- UL 110, Standard for Sustainability for Mobile Phones

Member of the ANSI/UL TC 2272 – *Electrical Systems for Personal E-Mobility Devices*, that is responsible for maintaining the following UL Safety Standard:

- UL 2272, Standard for Electrical Systems for Personal E-Mobility Devices

Member of the ANSI/UL TC 2056 – *Power Banks*, that is responsible for maintaining the following UL Safety Standard:

- UL 2056, Outline of Investigation for Safety of Power Banks

Member of the ANSI/UL TC 2849 – *Electrical Systems for EBikes*, that is responsible for maintaining the following UL Safety Standard:

- UL 2849, Standard for Electrical Systems for EBikes

Member of the ANSI/UL TC 82 – *Electric Gardening Appliances*, that is responsible for maintaining the following UL Safety Standards:

- UL 82, Standard for Electric Gardening Appliances
- UL 1090, Standard for Electric Snow Movers
- UL 1447, Standard for Electric Lawn Mowers
- UL 1602, Standard for Gasoline-Engine-Powered, Rigid-Cutting-Member Edgers and Edger: Trimmers
- UL 60745-2-15, Hand-Held -Operated Electric Tools – Safety – Part 2-15: Particular Requirements for Hedge Trimmers
- UL 62841-4-1, Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery – Safety – Part 4-1: Particular Requirements For Chain Saws
- UL 62841-4-2, Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery – Safety – Part 4-2: Particular Requirements For Hedge Trimmers
- UL 62841-4-3, Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery – Safety – Part 4-3: Particular Requirements For Pedestrian Controlled Walk-Behind Lawnmowers
- UL 62841-4-4, Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery – Safety – Part 4-4: Particular Requirements For Lawn Trimmers, Lawn Edge Trimmers, Grass Trimmers, Brush Cutters and Brush Saws
- UL 62841-4-1000, Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery – Safety – Part 4-1000: Particular Requirements For Utility Machines

Member of the ANSI/UL TC 745 – *Electric Tools*, that is responsible for maintaining the following UL Safety Standards:

- UL 987, Standard for Stationary and Fixed Electric Tools
- UL 1097, Double Insulation Systems for Use in Electrical Equipment
- UL 745-1, Standard for Portable Electric Tools
- UL 60745-1, Hand-Held Motor-Operated Electric Tools – Safety – Part 1: General Requirements
- UL 745-2-31, Particular Requirements for Diamond Core Drills
- UL 745-2-32, Particular Requirements for Magnetic Drill Presses
- UL 60745-2-1, Hand-Held Motor-Operated Electric Tools – Safety – Part 2-1: Particular Requirements for Drills and Impact Drills
- UL 60745-2-2, Hand-Held Motor-Operated Electric Tools – Safety – Part 2-2: Particular Requirements for Screwdrivers and Impact Wrenches
- UL 60745-2-3, Hand-Held Motor-Operated Electric Tools – Safety – Part 2-3: Particular Requirements for Grinders, Polishers and Disk-Type Sanders
- UL 60745-2-4, Hand-Held Motor-Operated Electric Tools – Safety – Part 2-4: Particular Requirements for Sanders and Polishers Other Than Disk Type
- UL 60745-2-5, Hand-Held Motor-Operated Electric Tools – Safety – Part 2-5: Particular Requirements for Circular Saws
- UL 60745-2-6, Hand-Held Motor-Operated Electric Tools – Safety – Part 2-6: Particular Requirements for Hammers
- UL 60745-2-8, Hand-Held Motor-Operated Electric Tools – Safety – Part 2-8: Particular Requirements for Shears and Nibblers
- UL 60745-2-9, Hand-Held Motor-Operated Electric Tools – Safety – Part 2-9: Particular Requirements for Tappers
- UL 60745-2-11, Hand-Held Motor-Operated Electric Tools – Safety – Part 2-11: Particular Requirements for Reciprocating Saws
- UL 60745-2-12, Hand-Held Motor-Operated Electric Tools – Safety – Part 2-12: Particular Requirements for Concrete Vibrators
- UL 60745-2-13, Hand-Held Motor-Operated Electric Tools – Safety – Part 2-13: Particular Requirements for Chain Saws
- UL 60745-2-14, Hand-Held Motor-Operated Electric Tools – Safety – Part 2-14: Particular Requirements for Planers
- UL 60745-2-16, Hand-Held Motor-Operated Electric Tools – Safety – Part 2-16: Particular Requirements for Tackers
- UL 60745-2-17, Hand-Held Motor-Operated Electric Tools – Safety – Part 2-17: Particular Requirements for Routers and Trimmers
- UL 60745-2-18, Hand-Held Motor-Operated Electric Tools – Safety – Part 2-18: Particular Requirements for Strapping Tools
- UL 60745-2-19, Hand-Held Motor-Operated Electric Tools – Safety – Part 2-19: Particular Requirements for Jointers
- UL 60745-2-20, Hand-Held Motor-Operated Electric Tools – Safety – Part 2-20: Particular Requirements for Band Saws
- UL 60745-2-21, Hand-Held Motor-Operated Electric Tools – Safety – Part 2-21: Particular Requirements for Drain Cleaners
- UL 60745-2-22, Hand-Held Motor-Operated Electric Tools – Safety – Part 2-22: Particular Requirements for Cut-Off Machines
- UL 60745-2-23, Hand-Held Motor-Operated Electric Tools – Safety – Part 2-23: Particular Requirements for Die Grinders and Small Rotary Tools

- UL 2565, Standard for Manual and Semi-Automatic Metal Sawing Machines
- UL 62841-2-1, Electric Motor-Operated Hand-Held Tools, Transportable Tools and Lawn and Garden Machinery – Safety – Part 2-1: Particular Requirements for Hand-Held Drills and Impact Drills
- UL 62841-2-2, Electric Motor-Operated Hand-Held Tools, Transportable Tools and Lawn and Garden Machinery – Safety – Part 2-2: Particular Requirements for Hand-Held Screwdrivers and Impact Wrenches
- UL 62841-2-3, Electric Motor-Operated Hand-Held Tools, Transportable Tools and Lawn and Garden Machinery – Safety – Part 2-3: Particular Requirements for Hand-Held Grinders, Disc-Type Polishers and Disc-Type Sanders
- UL 62841-2-4, Electric Motor-Operated Hand-Held Tools, Transportable Tools and Lawn and Garden Machinery – Safety – Part 2-4: Particular Requirements for Hand-Held Sanders and Polishers Other Than Disk Type
- UL 62841-2-5, Electric Motor-Operated Hand-Held Tools, Transportable Tools and Lawn and Garden Machinery – Safety – Part 2-5: Particular Requirements for Hand-Held Circular Saws
- UL 62841-2-6, Electric Motor-Operated Hand-Held Tools, Transportable Tools and Lawn and Garden Machinery – Safety – Part 2-6: Particular Requirements for Hand-Held Hammers
- UL 62841-2-8, Electric Motor-Operated Hand-Held Tools, Transportable Tools and Lawn and Garden Machinery – Safety – Part 2-8: Particular Requirements for Hand-Held Shears and Nibblers
- UL 62841-2-9, Electric Motor-Operated Hand-Held Tools, Transportable Tools and Lawn and Garden Machinery – Safety – Part 2-9: Particular Requirements for Hand-Held Tappers and Threaders
- UL 62841-2-10, Electric Motor-Operated Hand-Held Tools, Transportable Tools and Lawn and Garden Machinery – Safety – Part 2-10: Particular Requirements for Hand-Held Mixers
- UL 62841-2-11, Electric Motor-Operated Hand-Held Tools, Transportable Tools and Lawn and Garden Machinery – Safety – Part 2-11: Particular Requirements for Hand-Held Reciprocating Saws
- UL 62841-2-14, Electric Motor-Operated Hand-Held Tools, Transportable Tools and Lawn and Garden Machinery – Safety – Part 2-14: Particular Requirements for Hand-Held Planers
- UL 62841-2-17, Electric Motor-Operated Hand-Held Tools, Transportable Tools and Lawn and Garden Machinery – Safety – Part 2-14: Particular Requirements for Hand-Held Routers
- UL 62841-2-21, Electric Motor-Operated Hand-Held Tools, Transportable Tools and Lawn and Garden Machinery – Safety – Part 2-14: Particular Requirements for Hand-Held Drain Cleaners
- UL 62841-3-1, Electric Motor-Operated Hand-Held Tools, Transportable Tools and Lawn and Garden Machinery – Safety – Part 3-1: Particular Requirements for Transportable Table Saws
- UL 62841-3-4, Electric Motor-Operated Hand-Held Tools, Transportable Tools and Lawn and Garden Machinery – Safety – Part 3-4: Particular Requirements for Transportable Bench Grinders
- UL 62841-3-6, Electric Motor-Operated Hand-Held Tools, Transportable Tools and Lawn and Garden Machinery – Safety – Part 3-6: Particular Requirements for Transportable Diamond Drills With Liquid System
- UL 62841-3-7, Electric Motor-Operated Hand-Held Tools, Transportable Tools and Lawn and Garden Machinery – Safety – Part 3-7: Particular Requirements for Transportable Wall Saws
- UL 62841-3-9, Electric Motor-Operated Hand-Held Tools, Transportable Tools and Lawn and Garden Machinery – Safety – Part 3-9: Particular Requirements for Transportable Mitre Saws

- UL 62841-3-10, Electric Motor-Operated Hand-Held Tools, Transportable Tools and Lawn and Garden Machinery – Safety – Part 3-10: Particular Requirements for Transportable Cut-Off Machines
- UL 62841-3-13, Electric Motor-Operated Hand-Held Tools, Transportable Tools and Lawn and Garden Machinery – Safety – Part 3-13: Particular Requirements for Transportable Drills
- UL 62841-3-14, Electric Motor-Operated Hand-Held Tools, Transportable Tools and Lawn and Garden Machinery – Safety – Part 3-14: Particular Requirements for Transportable Drain Cleaners
- UL 62841-3-1000, Electric Motor-Operated Hand-Held Tools, Transportable Tools and Lawn and Garden Machinery – Safety – Part 3-1000: Particular Requirements for Transportable Laser Engravers

Member of the ANSI/UL TC 1449 – *Surge Protectors*, that is responsible for maintaining the following UL Safety Standard:

- UL 1449, Standard for Surge Protective Devices

Member of the ANSI/UL TC 1053 – *Ground Fault Sensing And Relaying Equipment*, that is responsible for maintaining the following UL Safety Standard:

- UL 1053, Standard for Ground-Fault Sensing and Relaying Equipment

Member of the ANSI/UL TC 943 – *Ground-Fault Circuit-Interrupters*, that is responsible for maintaining the following UL Safety Standards:

- UL 943, Ground-Fault Circuit-Interrupters
- UL 943B, Standard for Appliance Leakage-Current Interrupters

Member of the ANSI/UL TC 1699 – *Arc-Fault Circuit-Interrupters*, that is responsible for maintaining the following UL Safety Standard:

- UL 1699, Standard for Arc-Fault Circuit-Interrupters

Member of the ANSI/UL TC 62446 – *Photovoltaic Systems – Requirements for Testing, Documentation And Maintenance – Grid Connected Systems*, that is responsible for maintaining the following UL Safety Standards:

- UL 62093, Standard for Balance-of-Systems Components for Photovoltaic Systems – Design Qualification Natural Environments

Member of the ANSI/UL TC 1699B – *Photovoltaic (PV) DC Arc-Fault Circuit Protection*, that is responsible for maintaining the following UL Safety Standard:

- UL 1699B, Standard for Photovoltaic (PV) DC Arc-Fault Circuit Protection

Member of the ANSI/UL TC 1741 – *Inverters, Converters, And Controllers For Use In Independent Power Systems*, that is responsible for maintaining the following UL Safety Standards:

- UL 1741, Standard for Inverters, Converters, Controllers and Interconnection System Equipment for Use With Distributed Energy Resources
- UL 62109-1, Standard for Safety of Power Converters for use in Photovoltaic (PV) Power Systems – Part 1: General Requirements
- UL 62109-2, Standard for Safety of Power Converters for use in Photovoltaic (PV) Power Systems – Part 2: Particular Requirements for Inverters

- UL 62109-3, Standard for Safety of Power Converters for use in Photovoltaic (PV) Power Systems – Part 3: General Requirements for Electronic Devices in Combination With Photovoltaic Elements
- UL 63112, Photovoltaic (PV) Arrays – Earth Fault Protection Equipment – Safety and Safety-Related Functionality

Member of the ANSI/UL TC 3741 – *Photovoltaic Hazard Control*, that is responsible for maintaining the following UL Safety Standard:

- UL 3741, Standard for Photovoltaic Hazard Control

Member of the ANSI/UL TC 8801 – *Photovoltaic (PV) Luminaire Systems*, that is responsible for maintaining the following UL Safety Standard:

- UL 8801, Standard for Photovoltaic (PV) Luminaire Systems

Member of the ANSI/UL TC 6703 – *Connectors for Use in Photovoltaic (PV) Systems*, that is responsible for maintaining the following UL Safety Standard:

- UL 6703, Standard for Connectors for Use in Photovoltaic (PV) Systems
- UL 9703, Outline of Investigation for Distributed Generation Wiring Harness
- UL 62852, Connectors for DC-Application in Photovoltaic Systems – Safety Requirements

Member of the ANSI/UL TC 1598 – *Luminaires*, that is responsible for maintaining the following UL Safety Standards:

- UL 1574, Standard for Track Lighting Systems
- UL 1598, Standard for Luminaires
- UL 1598A, Standard for Supplemental Requirements for Luminaires for Installation on Marine Vessels
- UL 1598B, Standard for Supplemental Requirements for Luminaire Reflector Kits for Installation on Previously Installed Fluorescent Luminaires

Member of the ANSI/UL TC 8750 – *Solid State And Light Emitting Diode (LED) Lighting*, that is responsible for maintaining the following UL Safety Standard:

- UL 8750, Standard for Light Emitting Diode (LED) Equipment for Use in Lighting Products

Member of the ANSI/UL TC 2735 – *Electric Utility Meters*, that is responsible for maintaining the following UL Safety Standard:

- UL 2735, Standard for Electric Utility Meters

Member of the ANSI/UL TC 1558 – *Metal-Enclosed Low-Voltage Power Circuit Break Switchgear*, that is responsible for maintaining the following UL Safety Standards:

- UL 1062, Standard for Unit Substations
- UL 1558, Standard for Metal-Enclosed Low-Voltage Power Circuit Breaker Switchgear

Member of the ANSI/UL TC 98 – *Power Switching Devices*, that is responsible for maintaining the following UL Safety Standards:

- UL 98, Standard for Enclosed and Dead-Front Switches
- UL 363, Standard for Knife Switches
- UL 977, Standard for Fused Power-Circuit Devices
- UL 1429, Standard for Pullout Switches

Member of the ANSI/UL TC 489 – *Molded-Case Circuit Breakers, Molded-Case Switches, and Supplementary Protectors*, that is responsible for maintaining the following UL Safety Standards:

- UL 489, Standard for Molded-Case Circuit Breakers, Molded-Case Switches, and Circuit-Breaker Enclosures
- UL 489A, Standard for Circuit Breakers for Use in Communication Equipment
- UL 1066, Standard for Low-Voltage AC and DC Power Circuit Breakers Used in Enclosures
- UL 1077, Standard for Supplementary Protectors for Use in Electrical Equipment

Member of the ANSI/UL TC 489B – *Molded-Case Circuit Breakers, Molded-Case Switches, and Circuit-Breaker Enclosures For Use With Photovoltaic (PV) Systems*, that is responsible for maintaining the following UL Safety Standard:

- UL 489B, Standard for Molded-Case Circuit Breakers, Molded-Case Switches, and Circuit-Breaker Enclosures For Use With Photovoltaic (PV) Systems

Member of the ANSI/UL TC 1008 – *Transfers Switch Equipment*, that is responsible for maintaining the following UL Safety Standards:

- UL 1008, Standard for Transfer Switch Equipment
- UL 1008M, Standard for Transfer Switch Equipment, Meter Mounted
- UL 1008S, Standard for Solid-State Transfer Switches

Member of the ANSI/UL TC 347 – *Medium-Voltage AC Contactors, Controllers, and Control Centers*, that is responsible for maintaining the following UL Safety Standard:

- UL 347, Standard for Medium-Voltage AC Contactors, Controllers, and Control Centers

Member of the ANSI/UL TC 61800 – *Adjustable Speed Electrical Power Drive Systems*, that is responsible for maintaining the following UL Safety Standards:

- UL 61800, Standard for Adjustable Speed Electrical Power Drive Systems
- UL 61800-5-1, Standard for Adjustable Speed Electrical Power Drive Systems – Part 5-1: Safety Requirements – Electrical, Thermal and Energy
- UL 61800-5-2, Standard for Adjustable Speed Electrical Power Drive Systems – Part 5-2: Safety Requirements – Functional

Member of the ANSI/UL TC 2157 – *Electric Clothes Washing Machines, Extractors, and Dryers*, that is responsible for maintaining the following UL Safety Standards:

- UL 1206, Standard for Electric Commercial Clothes-Washing Equipment
- UL 1240, Standard for Electric Commercial Clothes-Drying Equipment
- UL 2157, Electric Clothes Washing Machines and Extractors
- UL 2158, Electric Clothes Dryers

Member of the ANSI/UL TC 60335-2-40 – *Heating and Cooling Equipment, Heat Pumps, Air Conditioners and Dehumidifiers*, that is responsible for maintaining the following UL Safety Standards:

- UL 1995, Heating and Cooling Equipment
- UL 1996, Electric Duct Heaters
- UL 60335-2-40, Household and Similar Electrical Appliances, Part 2-40: Particular Requirements for Electrical Heat Pumps, Air-Conditioners and Dehumidifiers

Member of the ANSI/UL TC 873C – *Motor Thermal And Compressor Protectors*, that is responsible for maintaining the following UL Safety Standards:

- UL 2111, Standard for Overheating Protection for Motors
- UL 60730-2-3, Standard for Automatic Electrical Controls for Household and Similar Use; Part 2: Particular Requirements for Thermal Protectors for Ballasts for Tubular Fluorescent Lamps
- UL 60730-2-4, Standard for Automatic Electrical Controls for Household and Similar Use; Part 2: Particular Requirements for Thermal Motor Protectors for Motor Compressors of Hermetic and Semi-Hermetic Type
- UL 60730-2-10, Standard for Automatic Electrical Controls for Household and Similar Use; Part 2: Particular Requirements for Motor Starting Relays
- UL 60730-2-22, Standard for Automatic Electrical Controls for Household and Similar Use; Part 2: Particular Requirements for Thermal Motor Protectors

Member of the ANSI/UL TC 873D – *Timers and Time Switches*, that is responsible for maintaining the following UL Safety Standards:

- UL 917, Standard for Clock-Operated Switches
- UL 60730-2-7, Standard for Automatic Electric Controls for Household and Similar Use; Part 2: Particular Requirements for Timers and Time Switches

Member of the ANSI/UL TC 873E – *Temperature Controls, Appliance Controls*, that is responsible for maintaining the following UL Safety Standards:

- UL 244A, Solid-State Controls for Appliances
- UL 353, Limit Controls
- UL 873, Temperature-Indicating and -Regulating Equipment
- UL 60730-2-11A, Automatic Electrical Controls for Household and Similar Use - Part 2: Particular Requirements for Energy Regulators
- UL 60730-2-12, Automatic Electrical Controls for Household and Similar Use - Part 2: Particular Requirements for Automatic Electrically Operated Door Locks
- UL 60730-2-13, Automatic Electrical Controls for Household and Similar Use - Part 2: Particular Requirements for Humidity Sensing Controls
- UL 60730-2-13A, Automatic Electrical Controls for Household and Similar Use - Part 2: Particular Requirements for Humidity Sensing Controls
- UL 60730-2-15, Standard for Automatic Electrical Controls for Household and Similar Use - Part 2-15: Particular Requirements for Automatic Electrical Air Flow, Water Flow and Water Level Sensing Controls
- UL 60730-2-6, Automatic Electrical Controls for Household and Similar Use - Part 2: Particular Requirements for Automatic Electrical Pressure Sensing Controls Including Mechanical Requirements
- UL 60730-2-9, Automatic Electrical Controls for Household and Similar Use - Part 2: Particular Requirements for Temperature Sensing Controls

Member of the ANSI/UL TC 6691 – *Thermal-Links – Requirements And Application Guide*, that is responsible for maintaining the following UL Safety Standards:

- UL 60691, Standard for Thermal- Links – Requirements and Application Guide

Member of the ANSI/UL TC 6384 – *Fixed Capacitors For Use in Electronic Equipment*, that is responsible for maintaining the following UL Safety Standards:

- UL 60384-14, Safety Requirements for Fixed Capacitors for Use in Electronic Equipment – Part 14: Sectional Specification: Fixed Capacitors for Electromagnetic Interference Suppression and Connection to the Supply Mains

Member of the ANSI/UL TC 83 – *Power Cables*, that is responsible for maintaining the following UL Safety Standards:

- UL 44, Thermoset-Insulated Wires and Cables
- UL 66, Fixture Wire
- UL 83, Thermoplastic-Insulated Wires and Cables
- UL 83A, Standard for Fluoropolymer Insulated Wire
- UL 83B, Switchboard and Switchgear Wires and Cables
- UL 854, Standard for Service-Entrance Cables
- UL 1063, Standard for Machine-Tool Wires and Cables
- UL 1277, Standard for Electrical Power and Control Tray Cables With Optional Optical-Fiber Members
- UL 1426, Standard for Electrical Cables for Boats
- UL 1581, Reference Standard for Electrical Wires, Cables, and Flexible Cords
- UL 1685, Standard for Vertical-Tray Fire-Propagation and Smoke-Release Test for Electrical and Optical-Fiber Cables
- UL 2556, Wire and Cables Test Methods

Member of the ANSI/UL TC 746 – *Polymeric Materials*, that is responsible for maintaining the following UL Safety Standards:

- UL 94, Standard for Tests for Flammability of Plastic Materials for Parts in Devices and Appliances
- UL 746A, Standard for Polymeric Materials – Short Term Property Evaluations
- UL 746B, Standard for Polymeric Materials – Long Term Property Evaluations
- UL 746C, Standard for Polymeric Materials – Use in Electrical Equipment Evaluations
- UL 746D, Standard for Polymeric Materials – Fabricated Parts
- UL 1692, Standard for Polymeric Materials – Coil Forms
- UL 1694, Standard for Tests for Flammability of Small Polymeric Component Materials

Member of the ANSI/UL TC 583 – *Industrial Trucks*, that is responsible for maintaining the following UL Safety Standards:

- UL 558, Industrial Trucks, Internal-Combustion, Engine-Power
- UL 583, Electric-Battery-Powered Industrial Trucks

Member of the ANSI/UL TC 67 – *Power Distribution*, that is responsible for maintaining the following UL Safety Standards:

- UL 67, Standard for Panelboards
- UL 869A, Reference Standard for Service Equipment
- UL 891, Standard for Switchboards
- UL 1773, Standard for Termination Boxes

Member of the ANSI/CAN/UL TC 325 – *Door, Drapery, Gate, Louver, And Window Operators And Systems*, that is responsible for maintaining the following UL Safety Standards:

- UL 325, Standard for Door, Drapery, Gate, Louver, and Window Operators and Systems

Member of the ANSI/UL TC 294– *Access Control Systems*, that is responsible for maintaining the following UL Safety Standards:

- UL 294, Standard for Access Control System Units

Member of the ANSI/UL TC 60730-1 – *Automatic Electrical Controls for Household And Similar Use*, that is responsible for maintaining the following UL Safety Standards:

- UL 60730-1, Standard for Automatic Electrical Controls – Part 1: General Requirements
- UL 244B, Standard for Field Installed and/or Field Connected Appliance Controls

Member of the ANSI/UL TC 498 – *Attachment Plug And Receptacles*, that is responsible for maintaining the following UL Safety Standards:

- UL 498, Standard for Attachment Plugs and Receptacles
- UL 498B, Outline of Investigation for Receptacles with Integral Switching Means
- UL 498C, Standard for Flatron and Appliance Plugs
- UL 498D, Attachment Plugs, Cord Connectors, and Receptacles with Arcuate (Locking Type) Contacts
- UL 498E, Attachment Plugs, Cord Connectors and Receptacles – Enclosure Types for Environmental Protection
- UL 498F, Plugs, Socket-Outlets and Couplers with Arcuate (Locking Type) Contacts
- UL 498M, Marine Shore Power Inlets
- UL 1567, Standard for Receptacles and Switches Intended for Use with Aluminum Wire
- UL 1681, Standard for Wiring Device Configurations
- UL 62986, Standard for Plugs, Socket-Outlets and Couplers with Arcuate Contacts

Member of the ANSI/UL TC 231 – *Power Outlets*, that is responsible for maintaining the following UL Safety Standards:

- UL 231, Standard for Power Outlets

Member of the ANSI/UL TC 347A – *Medium Voltage Power Conversion Controllers*, that is responsible for maintaining the following UL Safety Standards:

- UL 347A, Standard for Medium Voltage Power Conversion Equipment

Member of the ANSI/UL TC 499 – *Electric Heating Appliances*, that is responsible for maintaining the following UL Safety Standards:

- UL 499, Standard for Electric Heating Appliances

Member of the ANSI/UL TC 507 – *Electric Fans and Power Ventilators*, that is responsible for maintaining the following UL Safety Standards:

- UL 507, Standard for Electric Fans
- UL 705, Standard for Safety for Power Ventilators
- UL 60335-2-80, Standard for Household and similar electrical appliances – Safety – Part 2-80: Particular requirements for fans.

Member of the ANSI/UL TC 858 – *Household Electric Ranges*, that is responsible for maintaining the following UL Safety Standards:

- UL 858, Standard for Household Electric Ranges

Member of the ANSI/UL TC 60730A – *Burner Controls*, that is responsible for maintaining the following UL Safety Standards:

- UL 372, Standard for Automatic Electrical Control for Household and Similar Use – Part2: Particular requirements for Burner Ignition Systems and Components
- UL 60730-2-5, Standard for Automatic Electrical Controls for Household and Similar Use, Part 2-5: Particular requirements for Automatic Electrical Burner Control Systems

Member of the ANSI/UL TC 859 – *Electric Personal Grooming Appliances*, that is responsible for maintaining the following UL Safety Standards:

- UL 859, Standard for Household Electric Personal Grooming Appliances
- UL 1727, Standard for Commercial Electric Personal Grooming Appliances

Member of the ANSI/UL TC 1026 – *Electric Household Cooking Appliances*, that is responsible for maintaining the following UL Safety Standards:

- UL 1026, Standard for Household Electric Cooking and Food Serving Appliances
- UL 1082, Standard for Household Electric Coffee Makers and Brewing-Type Appliances
- UL 1083, Standard for Household Electric Skillets and Frying-Type Appliances
- UL 60335-2-15, Household and Similar Electrical Appliances – Safety – Part 2 – 15: Particular requirements for Appliances for Heating Liquids

Member of the ANSI/UL TC 1310 – *Power Supplies*, that is responsible for maintaining the following UL Safety Standards:

- UL 697, Standard for Toy Transformers
- UL 1310, Standard for Class 2 Power Units
- UL 2089, Standard for Vehicle Battery Adapters

Member of the ANSI/UL TC 1411 – *Transformers For Audio, Radio, And Television Appliances*, that is responsible for maintaining the following UL Safety Standards:

- UL 1411, Standard for Transformers and Motor Transformers for Use in Audio-, Radio-, and Television-Type Appliances
- UL 1876, Standard for Isolating Signal and Feedback Transformers for Use in Electronic Equipment

Member of the ANSI/UL TC 1434 – *Thermistor-Type Devices*, that is responsible for maintaining the following UL Safety Standards:

- UL 1434, Standard for Thermistor-Type Devices

Member of the ANSI/UL TC 1647 – *Motor-Operated Massage And Exercise Machines*, that is responsible for maintaining the following UL Safety Standards:

- UL 1647, Standard for Motor-Operated Massage and Exercise Machines

Member of the ANSI/UL TC 1682 – *Plugs, Receptacles, And Cable Connectors Of The Pin And Sleeve Type Configurations*, that is responsible for maintaining the following UL Safety Standards:

- UL 1682, Standard for Plugs, Receptacles, and Cable Connectors of the Pin and Sleeve Type
- UL 1686, Standard for Pin and Sleeve Configurations

Member of the ANSI/UL TC 2200 – *Stationary Engine Generator Assemblies*, that is responsible for maintaining the following UL Safety Standards:

- UL 2200, Standard for Stationary Engine Generator Assemblies

Member of the ANSI/UL TC 2200A – *Stationary Engine Generator Enclosures*, that is responsible for maintaining the following UL Safety Standards:

- UL 2200A, Standard for Outline of Investigation for Fire Containment Testing of Stationary Engine Generator Enclosures

Member of the ANSI/UL TC 2237 – *Multi-Point Interconnection Power Cable Assemblies For Industrial Machinery*, that is responsible for maintaining the following UL Safety Standards:

- UL 2237, Standard for Multi-Point Interconnection Power Cable Assemblies for Industrial Machinery

Member of the UL TC 60601-1 – *Medical and Dental Equipment*, that is responsible for maintaining the following UL Safety Standards:

- UL 2237, Medical Electrical Equipment, Part 1: General Requirements for Safety

Member of the ANSI/UL TC 6131 – *Programmable Controllers*, that is responsible for maintaining the following UL Safety Standards:

- UL 61010-2-201, Standard for Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use – Part 2-201: Particular requirements for Control Equipment
- UL 61131-2, Standard for Programmable Controllers – Part 2: Equipment Requirements and Tests

Member of the ANSI/UL TC 1998 – *Software*, that is responsible for maintaining the following UL Safety Standards:

- UL 1998, Standard for Software in Programmable Components

Member of the ANSI/UL TC 5500 – *Remote Software Updates*, that is responsible for maintaining the following UL Safety Standards:

- UL 5500, Standard for Safety for Remote Software Updates

Member of the ANSI/UL TC 9741 – *Electric Vehicle Power Export Equipment (EVPE)*, that is responsible for maintaining the following UL Safety Standards:

- UL 9741, Standard for Outline of Investigation for Bidirectional Electric Vehicle (EV) Charging System Equipment

Member of the ANSI/UL TC 2251 – *Plugs, Receptacles, And Couplers For Electric Vehicles*, that is responsible for maintaining the following UL Safety Standards:

- UL 2251, Standard for Plugs, Receptacles, and Couplers for Electric Vehicles

Member of the ANSI/UL TC 2263 – *Electric Vehicle Cable*, that is responsible for maintaining the following UL Safety Standards:

- UL 2263, Standard for Electric Vehicle Cable

Member of the ANSI/UL TC 2750 – *Wireless Power Transfer Equipment For Electric Vehicles*, that is responsible for maintaining the following UL Safety Standards:

- UL 2750, Standard for Wireless Power Transfer Equipment for Electric Vehicles

Member of the ANSI/UL TC 61058 – *Switches For Appliances*, that is responsible for maintaining the following UL Safety Standards:

- UL 2557, Standard for Membrane Switches
- UL 61058, Standard for Switches for Appliances
- UL 61058-1, Standard for Switches for Appliances – Part 1: General Requirements
- UL 61058-1-1, Standard for Switches for Appliances – Part 1-1: Requirements for Mechanical Switches
- UL 61058-1-2, Standard for Switches for Appliances – Part 1-2: Requirements for Electronic Switches
- UL 61058-2-1, Standard for Switches for Appliances – Part 2: Particular requirements for Cord Switches
- UL 61058-2-5, Standard for Switches for Appliances – Part 2-5: Particular requirements for Change-Over Selectors
- UL 61058-2-6, Standard for Switches for Appliances – Part 2-6: Particular requirements for Switches Used in Electric Motor-Operated Hand-Held Tools, Transportable Tools and Lawn and Garden Machinery

Member of the ANSI/UL TC 61810 – *Electromechanical Elementary Relays*, that is responsible for maintaining the following UL Safety Standards:

- UL 61810, Standard for Electromechanical Elementary Relays
- UL 61810-1, Standard for Electromechanical Elementary Relays – Part 1: General Requirements

Member of the ANSI/UL TC 60947-4 – *Contactors And Motor-Starters*, that is responsible for maintaining the following UL Safety Standards:

- UL 508, Standard for Industrial Control Equipment
- UL 60947-1, Standard for Low-Voltage Switchgear and Controlgear – Part 1: General rules
- UL 60947-4, Standard for Contactors and Motor-Starters
- UL 60947-4-1, Standard for Low-Voltage Switchgear and Controlgear – Part 4-1: Contactors and Motor-Starters – Electromechanical Contactors and Motor-Starters
- UL 60947-4-2, Standard for Low-Voltage Switchgear and Controlgear – Part 4-2: Contactors and Motor-Starters – AC Semiconductor Motor Controllers and Starters

Member of the ANSI/UL TC 60947-5 – *Control Circuit Devices And Proximity Switches*, that is responsible for maintaining the following UL Safety Standards:

- UL 60947-5, Standard for Control Circuit Devices and Proximity Switches
- UL 60947-5-1, Standard for Low-Voltage Switchgear and Controlgear – Part 5-1: Control Circuit Devices and Switching Elements – Electromechanical Control Circuit Devices
- UL 60947-5-2, Standard for Low-Voltage Switchgear and Controlgear – Part 5-2: Control Circuit Devices and Switching Elements – Proximity Switches

- UL 60947-5-5, Standard for Low-Voltage Switchgear and Controlgear – Part 5-5: Control Circuit Devices and Switching Elements – Electrical emergency stop device with mechanical latching function

Member of the ANSI/UL TC 62841-1 – *Motor-Operated Tools And Garden Machinery*, that is responsible for maintaining the following UL Safety Standards:

- UL 62841-1, Standard for Electric Motor-Operated Hand-Held Tools, Transportable Tools And Lawn And Garden Machinery – Safety – Part1: General Requirements

Member of the ANSI/UL TC 982 – *Motor-Operated Household Appliances*, that is responsible for maintaining the following UL Safety Standards:

- UL 982, Standard for Motor-Operated Household Food Preparing Machines

Member of the ANSI/UL TC 48 – *Electric Signs*, that is responsible for maintaining the following UL Safety Standards:

- UL 48, Standard for Electric Signs
- UL 879A, Standard for LED Sign and Sign Retrofit Kits

Member of the ANSI/UL TC 96 – *Lightning Protection Components*, that is responsible for maintaining the following UL Safety Standards:

- UL 96, Standard for Lightning Protection Components
- UL 96A, Standard for Installation Requirements for Lightning Protection Systems

Member of the ANSI/UL TC 197 – *Commercial Cooking Appliances*, that is responsible for maintaining the following UL Safety Standards:

- UL 197, Standard for Commercial Electric Cooking Appliances

Member of the ANSI/UL TC 335A – *Household and Similar Electrical Appliances – General Requirements*, that is responsible for maintaining the following UL Safety Standards:

- UL 60335-1, Standard for Safety of Household and Similar Appliances, Part 1: General Requirements

Member of the ANSI/UL TC 335B – *Hermetic Refrigerant Motor-Compressors – General Requirements*, that is responsible for maintaining the following UL Safety Standards:

- UL 60335-2-34, Standard for Safety of Household and Similar Appliances - Safety, Part 2-34: Particular requirements for Motor-Compressors

Member of the ANSI/UL TC 484 – *Room Air Conditioners*, that is responsible for maintaining the following UL Safety Standards:

- UL 484, Standard for Room Air Conditioners

Member of the ANSI/UL TC 563 – *Ice Makers*, that is responsible for maintaining the following UL Safety Standards:

- UL 563, Standard for Ice Makers

Member of the ANSI/UL TC 574 – *Electric Oil Heaters*, that is responsible for maintaining the following UL Safety Standards:

- UL 574, Standard for Electric Oil Heaters

Member of the ANSI/UL TC 817 – *Cord Sets and Power-Supply Cords*, that is responsible for maintaining the following UL Safety Standards:

- UL 817, Standard for Cord Sets and Power-Supply Cords

Member of the ANSI/UL TC 924 – *Emergency Lighting and Power Equipment*, that is responsible for maintaining the following UL Safety Standards:

- UL 924, Standard for Emergency Lighting and Power Equipment

Member of the ANSI/UL TC 998 – *Humidifiers*, that is responsible for maintaining the following UL Safety Standards:

- UL 998, Standard for Humidifiers

Member of the ANSI/UL TC 1008A – *Medium-Voltage Transfer Switches*, that is responsible for maintaining the following UL Safety Standards:

- UL 1008A, Standard for Transfer Switch Equipment, Over 1000 Volts

Member of the ANSI/UL TC 1562 – *Transformers, Distribution, Dry-Type Over 600 Volts*, that is responsible for maintaining the following UL Safety Standards:

- UL 1562, Standard for Transformers, Distribution, Dry-Type Over 600 Volts

Member of the ANSI/UL TC 1563 – *Electric Spas, Equipment Assemblies, and Associated Equipment*, that is responsible for maintaining the following UL Safety Standards:

- UL 1563, Standard for Electric Spas, Equipment Assemblies, and Associated Equipment

Member of the ANSI/UL TC 1673 – *Electric Radiant Heating Panels and Cables*, that is responsible for maintaining the following UL Safety Standards:

- UL 1673, Standard for Electric Space Heating Cables
- UL 1693, Standard for Electric Radiant Heating Panels and Heating Panel Sets
- UL 2683, Standard for Electric Heating Systems for Floor and Ceiling Installation

Member of the ANSI/UL TC 1740 – *Robot and Robotic Equipment*, that is responsible for maintaining the following UL Safety Standards:

- UL 1740, Standard for Robots and Robotic Equipment

Member of the ANSI/UL TC 1778 – *Uninterruptible Power Systems*, that is responsible for maintaining the following UL Safety Standards:

- UL 1778, Standard for Uninterruptible Power Systems

Member of the ANSI/UL TC 1974 – *Electric Spas, Equipment Assemblies, and Associated Equipment*, that is responsible for maintaining the following UL Safety Standards:

- UL 1563, Standard for Electric Spas, Equipment Assemblies, and Associated Equipment

Member of the ANSI/UL TC 2743 – *Portable Power Packs*, that is responsible for maintaining the following UL Safety Standards:

- UL 2743, Standard for Portable Power Packs

Member of the ANSI/UL TC 6065 – *Audio, Video And Similar Electronic Apparatus – Safety Requirements*, that is responsible for maintaining the following UL Safety Standards:

- UL 150, Standard for Antenna Rotators
- UL 452, Standard for Antenna – Discharge Units
- UL 469, Standard for Musical Instruments and Accessories
- UL 813, Standard for Commercial Audio Equipment
- UL 1412, Standard for Fusing Resistors and Temperature-Limited Resistors for Radio- and Television- Type Appliances
- UL 1413, Standard for High-Voltage Components for Television-Type-Appliances
- UL 1416, Standard for Overcurrent and Overtemperature Protectors for Radio- and Television- Type Appliances
- UL 1417, Standard for Special Fuses for Radio- and Television-Type Appliances
- UL 1492, Standard for Audio-Video Products and Accessories
- UL 1676, Standard for Conductive-Path and Discharge-Path Resistors for Use in Radio, Video-, or Television-Type Appliances
- UL 6500, Standard for Audio/Video and Musical Instrument Apparatus for Household, Commercial, and Similar General Use
- UL 60065, Standard for Audio, Video and Similar Electronic Apparatus – Safety Requirements

Member of the ANSI/UL TC 60335-2-8 – *Hair Clipping And Shaving*, that is responsible for maintaining the following UL Safety Standards:

- UL 60335-2-8, Standard for Household and Similar Electrical Appliances – Safety – Part 2-8: Particular requirements for Shavers, Hair Clippers, and Similar Appliances

Member of the ANSI/UL TC 1004-1 – *Motors*, that is responsible for maintaining the following UL Safety Standards:

- UL 1004-1, Standard for Rotating Electrical Machines – General Requirements
- UL 1004-2, Standard for Impedance Protected Motors
- UL 1004-3, Standard for Thermally Protected Motors
- UL 1004-4, Standard for Electric Generators
- UL 1004-5, Standard for Fire Pump Motors
- UL 1004-6, Standard for Servo and Stepper Motors
- UL 1004-7, Standard for Electronically Protected Motors
- UL 1004-8, Standard for Inverter Duty Motors
- UL 1004-9, Standard for Form Wound and Medium Voltage Rotating Electrical Machines
- UL 1004-10, Standard for Pool Pump Motors
- UL 60034-1, Standard for Rotating Electrical Machines – Part1: Rating and Performance
- UL 60034-2, Standard for Rotating Electrical Machines – Part 2-1: Standard methods for determining losses and efficiency from tests (excluding machines for traction vehicles)
- UL 60034-5, Standard for Rotating Electrical Machines – Part 5: Degrees of Protection Provided by the Integral Design of Rotating Electrical Machines (IP code) – Classification

Member of the ANSI/UL TC 60335-2-24 – *Refrigerating Appliances, Ice-Cream Appliances And Ice-Makers*, that is responsible for maintaining the following UL Safety Standards:

- UL 60335-2-24, Standard for Household and Similar Electrical Appliances – Safety – Part 2-24: Particular requirements for Refrigerating Appliances, Ice-Cream Appliances and Ice-Makers

Member of the ANSI/UL TC 60335-2-89 – *Commercial Refrigeration And Freezers, Unit Coolers, And Refrigerating Units*, that is responsible for maintaining the following UL Safety Standards:

- UL 412, Standard for Refrigeration Unit Coolers
- UL 427, Standard for Refrigerating Units
- UL 471, Standard for Commercial Refrigerators and Freezers
- UL 60335-2-89, Standard for Household and Similar Electrical Appliances – Safety – Part 2-89: Particular Requirements for Commercial Refrigerating Appliances and Ice-Makers with an Incorporated or Remote Refrigerant Unit or Motor-Compressor

Honors

- Elected to President of the National Academy of Forensic Engineers (NAFE) and Chairman of the Board of Directors for NAFE, 2022
- Elected to Fellow (F.NSPE) by the National Society of Professional Engineers (NSPE) Board of Directors, 2020
- Appointed by NSPE President to serve as Chairman of the NSPE Board of Ethical Review, 2012-2013

Publications

- “*The Evolution of Batteries Utilized in Outdoor Power Tools and Vehicles*,” Sudler, III, S.G., and Fogarty, A., Defense Research Institute (DRI), 2022
- “*Use of 3D Printing in Forensic Investigations*,” Sudler, III, S.G., and Swanson, J.E., Defense Research Institute (DRI), 2016
- “*The Forensic Engineer as an Expert: Developing Your Construction Defect Case Defense*,” Sudler, III, S.G., and Gridley, J.A., Defense Research Institute (DRI), 2011
- “*Management of Catastrophic Industrial or Construction Disasters from Prevention to Preservation*,” Dukes, W.W., Sudler, III, S.G., and Culbreath, G.T., Federation of Defense and Corporate Council (FDCC), 2010
- “*Who’s In Charge Here? Management of the Complex Fire Scene*,” Sudler, III, S.G., Defense Research Institute (DRI), 2008

Professional Affiliations

Past-President and Member of Board of Directors for the National Academy of Forensic Engineers (NAFE)

Former Senior Vice President and Member of Board of Directors for the National Academy of Forensic Engineers (NAFE)

Former Director-At-Large, Board of Directors for the National Academy of Forensic Engineers (NAFE)

Chairman, Ethics Committee for the National Academy of Forensic Engineers (NAFE)

Senior Member, National Academy of Forensic Engineers (NAFE)

Former Member, National Institute for Engineering Ethics (NIEE) Executive Committee

Former Chairman, National Society of Professional Engineers (NSPE) Board of Ethical Review (BER)
 Former Northeast Regional Representative, National Society of Professional Engineers Board of Ethical Review
 Senior Member, Institute of Electrical and Electronic Engineers (IEEE)
 Senior Member, International Society of Automation (ISA)
 Council Record Holder Designated Model Law Engineer (MLE), National Council of Examiners for Engineers and Surveyors (NCEES)
 Former Chairman, NSPE/PEI Young Engineers Advisory Council (YEAC)
 Former Vice President, Illinois Society of Professional Engineers (ISPE)
 Licensed Member, National Society of Professional Engineers (NSPE)
 Member, NSPE/Professional Engineer in Industry Practice Division
 Member, IEEE/Consumer Electronics Society
 Member, IEEE/Industry Applications Society
 Member, IEEE/Power and Energy Society
 Member, National Fire Protection Association (NFPA)
 Member, NFPA/Electrical Section
 Participating Member, American Society of Testing and Materials (ASTM)
 Voting Member, ASTM/Nondestructive Testing Committee (Section E07)
 Voting Member, ASTM/Forensic Sciences Committee (Section E30)
 Voting Member, ASTM/Forensic Engineering Committee (Section E58)
 Voting Member, ASTM/Electrical and Electronic Insulating Materials Committee (Section D09)
 Member, National Association of Fire Investigators (NAFI)
 Member, International Association of Arson Investigators (IAAI)
 Member, Institution of Engineering and Technology (MIET), formerly the Institute of Electrical Engineers (IEE)

Additional Training

- 2023 – NAFE Application of Engineering in Jurisprudence Systems (8 PDHs)
- 2023 – NAFE Ethics, Forensic Analysis, and Professional Practice (8 PDHs)
- 2022 – NAFE Application of Engineering in Jurisprudence Systems (16 PDHs)
- 2022 – NAFE Ethics, Forensic Analysis, and Professional Practice (16 PDHs)
- 2021 – NAFE Application of Engineering in Jurisprudence Systems (4 PDHs)
- 2021 – NAFE Ethics, Forensic Analysis, and Professional Practice (4 PDHs)
- 2020 – NAFE Application of Engineering in Jurisprudence Systems (11 PDHs)
- 2020 – NAFE Ethics, Forensic Analysis, and Professional Practice (11 PDHs)
- 2019 – NAFE Application of Engineering in Jurisprudence Systems (7 PDHs)
- 2019 – NAFE Ethics, Forensic Analysis, and Professional Practice (7 PDHs)
- 2018 – NAFE Application of Engineering in Jurisprudence Systems (8 PDHs)
- 2018 – NAFE Ethics, Forensic Analysis, and Professional Practice (8 PDHs)
- 2017 – NAFE Application of Engineering in the Jurisprudence System (8 PDHs)
- 2017 – NAFE Ethics, Forensic Analysis, and Professional Practice (8 PDHs)
- 2016 – NAFE Application of Engineering in the Jurisprudence System (8 PDHs)
- 2016 – NAFE Ethics, Forensic Engineering, and Analytical Techniques (8 PDHs)
- 2015 – NAFE Application of Engineering in the Jurisprudence System (8 PDHs)
- 2015 – NAFE Ethics, Rules & Laws, Daubert-Proofing & Reasonably Dangerous Products (8 PDHs)

- 2014 – NAFE General Topics in Forensic Engineering (8 PDHs)
- 2014 – NAFE Ethics, Use and Misuse of Standards for Forensic Engineers (8 PDHs)
- 2013 – NAFE General Topics in Forensic Engineering (8 PDHs)
- 2013 – NAFE Ethical Considerations for Forensic Engineers (8 PDHs)
- 2012 – NAFE General Topics in Forensic Engineering (8 PDHs)
- 2012 – NAFE Reports, Affidavits, Motions in Limine, Depositions, Court Testimony and Ethics (8 PDHs)
- 2011 – NAFE General Topics in Forensic Engineering (8 PDHs)
- 2011 – NAFE Reports, Harassment, Contracts and Challenges (8 PDHs)
- 2010 – NAFE General Topics in Forensic Engineering (8 PDHs)
- 2010 – NAFE Regular Depositions, Subpoenas, Records Production, Errata Sheets, Video Depositions, Rights and Responsibilities (8 PDHs)
- 2009 – NAFE Forensic Engineer (FE) Evidence: Gathering, Storing, Analyzing, Documenting, Reporting, Copyright & Patent Rights (8PDHs)
- 2009 – NAFE General Topics in Forensic Engineering (8 PDHs)
- 2008 – NAFI/NFPA Advanced Fire, Arson & Explosion Investigation Training Program
- 2008 – NAFE Medical Information & Standards for Engineering Evidence (8 PDHs)
- 2008 – NAFE General Topics in Forensic Engineering (8 PDHs)
- 2008 – Fire Investigation Methods and Updates on Current Investigative Issues, SEA, Ltd.
- 2007 – NAFE General Topics in Forensic Engineering (8 PDHs)
- 2007 – IEEE Electric Drives: Understanding Basics (3 PDHs)
- 2007 – IEEE An Introduction to Power Electronics (3 PDHs)
- 2007 – IEEE Introduction to Instrumentation (3 PDHs)
- 2007 – IEEE Cyber Security of Substation Control & Diagnostic Systems (3 PDHs)
- 2005 – NAFE Daubert Challenges to Forensic Engineers and Scientific Methodologies (8 CEUs)
- 2005 – NAFE Daubert Challenges to Forensic Engineers and Scientific Methodologies (8 CEUs)
- 2005 – NSPE Risky Business: What Causes Claims and How to Avoid Them (1.5 PDHs)
- 2005 – NSPE Engineering Ethics: You Be The Judge (1.5 PDHs)
- 2004 – National Academy of Forensic Engineers (NAFE), General Topics in Forensic Engineering (8 CEUs)
- 2004 – NSPE Global Issues in Engineering: Licensure and Legislature (1.5 PDHs)
- 2004 – National Society of Professional Engineers (NSPE) Engineering Council (EC) Accreditation Board for Engineering and Technology (ABET) Evaluator Training (6 PDHs)
- 2003 – Vehicle Fire, Arson & Explosion Investigation Science & Technology Seminar, NAFI, Eastern Kentucky University
- 2003 – IAAI Electrical Appliance Fires, Gas Appliance and Explosions, Wood-Burning Appliance Fires (3 CEUs)
- 2002 – NFPA National Electrical Code Seminar (2.1 CEUs)
- 1999 – Learning Tree International Visual Basic and COM for Enterprising Applications: Hands On (3 CEUs)
- 1998 – ABB Electrical Service M93 Course for IRB 6000 Robots
- 1998 – ABB S3 Programming Course for IRB 6000 Robots
- 1998 – Rockwell Automation Drive Systems Automax Intermediate Programming
- 1997 – College of DuPage C Programming Language (5 credit hours)
- 1997 – IDC Technical Training Course on Practical Process Control for Engineers and Technicians

- 1996 – ACS Technical Training Course on Grounding, Shielding, and Surge Protection of Electrical Equipment for Instrumentation and Control
- 1996 – Intellution DOS FIX DMACS Programming
- 1995 – GE Series 90-70 PLC Basic Programming
- 1995 – Siemens Industrial Automation Inc., S5 Programming II

Courses Taught/Presentations

- 2022 – “Lithium-Ion Battery Forensic Investigations,” McCoy Leavitt Laskey Fire Science Litigation Seminar, Ponte Vedra Beach, Florida
- 2022 – “Practical Real-World Ethical Challenges a Forensic Engineer Faces and How to Contend with those Challenges,” National Academy of Forensic Engineers (NAFE), Tucson, Arizona
- 2021 – “*Ethics for Forensic Engineers*,” National Academy of Forensic Engineers (NAFE), Virtual Meeting
- 2020 – “*2020 Update on Ethics, Law and Public Policy Affecting Forensic Engineers*,” National Academy of Forensic Engineers (NAFE), San Diego, California
- 2019 – “*Electrical Systems and the Electrical Grid: Supplying Power or Causing the Program?*,” McCoy Leavitt Laskey Fire Science and Litigation Seminar, San Antonio, Texas
- 2019 – “*Update on Ethics, Law and Public Policy affecting Forensic Engineers*,” National Academy of Forensic Engineers (NAFE), Orlando, Florida
- 2018 – “*Evidence Preservation Protocols*,” Defense Research Institute (DRI) Fire Science Litigation Seminar, Washington, DC
- 2018 – “*Ethics and Engineers*,” National Society of Professional Engineers (NSPE), Las Vegas, Nevada
- 2018 – “*Effective Use of Demonstrative Exhibits*,” USLAW, Lloyds of London, London, England
- 2018 – “*Electronic Cigarette Forensic Investigations*,” Ark Syndicate Management Limited, London, England
- 2018 – “*Ethics, Law and Public Policy Affecting Forensic Engineers*,” National Academy of Forensic Engineers (NAFE), Phoenix, Arizona
- 2017 – “*Ethics and Engineering*,” National Society of Professional Engineers (NSPE), Atlanta, Georgia
- 2017 – “*Ethics for Engineers*,” National Academy of Forensic Engineers (NAFE), New Orleans, Louisiana
- 2016 – “*Use of 3D Printing in Forensic Investigations*,” Defense Research Institute (DRI) Fire and Casualty Seminar, New Orleans, Louisiana
- 2016 – “*Ethics for Engineers*,” National Academy of Forensic Engineers (NAFE), Tampa, Florida
- 2015 – “*Ethics in Engineering*,” National Academy of Forensic Engineers (NAFE), Hollywood Beach, Florida
- 2012 – “*Experiential Adjusters Boot Camp*,” USLAW, Lloyds of London, London, England
- 2011 – “*The Forensic Engineer as an Expert: Developing Your Construction Defect Case Defense*,” Defense Research Institute (DRI), Phoenix, Arizona
- 2010 – “*Management of Catastrophic Industrial or Construction Disasters from Prevention to Preservation*,” Federation of Defense and Corporate Council (FDCC), Munich, Germany
- 2008 – “*Who’s In Charge Here? Management of the Complex Fire Scene*,” Defense Research Institute (DRI) Fire and Casualty Seminar, Chicago, Illinois

Professional Resume

Samuel G. Sudler, III, P.E., IntPE, DFE, F.NSPE, CFEI, CVFI (11/2023)

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2005 – “*Investigation of Electrical Fires,*” International Association of Arson Investigators (IAAI) Illinois Chapter, 22nd Annual Fire Investigation Training Conference, Urbana, Illinois

2005 – “*Electrical Engineering Subrogation Principles,*” National Association of Subrogation Professionals (NASP) North Central Region Educational Session, Chicago, Illinois